



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/711,362	11/10/2000	Yoshiaki Yokoyama	Yaguchi-0016	6786
22850	7590	03/08/2006	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			LEUNG, JENNIFER A	
			ART UNIT	PAPER NUMBER

1764

DATE MAILED: 03/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/711,362

Applicant(s)

YOKOYAMA ET AL.

Examiner

Jennifer A. Leung

Art Unit

1764

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Appeal Brief

1. This is in response to the appeal brief filed December 14, 2006 appealing the final Office action mailed May 24, 2005. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn. Claims 1-20 are currently under consideration.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Küntziger et al. (US 3,888,123).

Regarding claim 1, Küntziger et al. (FIG. 1; column 3, line 41 to column 4, line 24) discloses an apparatus comprising:

a first hermetic chamber (i.e., a blast furnace 4) having a first opening (i.e., at the blast furnace wall 14);

a tube (i.e., probe 2, with cylindrical outer casing 16) capable of inserting into the first opening, said tube 2/16 having a second opening on a side facing the first hermetic chamber 4 (i.e., an aperture 18, 20, 22, 24, 26, 28, 30, 32, or 34; see FIG. 2), and a third opening on the tube 2/16 (i.e., at the distributor system 56, where different gas samples are simultaneously supplied via separate pipe lines to collecting tanks, not shown); and

a first hermetic door (i.e., a cut off valve **12**; column 3, lines 59-65) placed outside the first hermetic chamber **4**, capable of opening and closing the first opening at the furnace wall **14**, the first hermetic door **12** being positioned between the second opening **18, 20, 22, 24, 26, 28, 30, 32, or 34** and the third opening at the distributor system **56** such that the first hermetic door **12** is shielded from the first hermetic chamber **4** by the tube **2/16** when insertion of the tube into the first opening is completed (see configuration of FIG. 1).

Regarding claim 2, an exhaust system (i.e., via the distributor system **56**; column 4, lines 19-24) exhausts the first hermetic chamber **4** via the second opening and the third opening of the tube when the tube **2/16** is inserted into the first opening at the furnace wall **14**.

Regarding claim 3, the first hermetic chamber **4** maintains a vacuum state when the first hermetic door **12** is at a closing position (i.e., in operation, the furnace is inherently sealed from atmospheric air; see column 3, lines 59-65).

Regarding claim 4, the exhaust system (i.e., via the distributor system **56**) exhausts the first hermetic chamber **4** when the first hermetic door **12** is at an opening position (see configuration of FIG. 1), and the exhausting system is isolated from the first hermetic chamber **4** when the first hermetic door is at a closing position (i.e., because the distributor system **56** is located on the outside of the furnace **4**).

Regarding claim 5, Küntziger et al. discloses means for cooling the tube **2/16** when the tube is inserted into the first opening (i.e., by cooling water supplied to chambers **60** and **58** within outer casing **16**; see FIG. 2, 3; column 4, lines 25-38).

Regarding claim 6, the first hermetic chamber (i.e., blast furnace **4**) inherently comprises means for regulating a temperature within the chamber when the first hermetic door **12** is at an

Art Unit: 1764

opening and a closing position because a “furnace”, by definition, provides heating, and is thus capable of regulating a temperature within the chamber.

Regarding claim 7, the apparatus comprises means for guiding an inserting operation of the tube 2/16 (i.e., a sliding or guide block 6; FIG. 1; column 3, lines 41-53).

Instant claims 1-7 structurally read on the apparatus of Küntziger et al.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-7, 10-12 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bassereau (US 2,446,403).

Regarding claim 1, Bassereau (Figure; column 2, lines 27-48; column 3, line 61 to column 4, line 42) discloses an apparatus comprising:

a first hermetic chamber (i.e., furnace 1, in communication with hood 5) having a first opening (i.e., at the location of the fluid tight connection means 8);

a tube (i.e., a condenser 4a comprising a cylinder of sheet metal) capable of inserting into the first opening located at connection means 8; the tube 4a having a second opening on a side facing the first hermetic chamber 1/5 (i.e., the left open end of the condenser tube 4a, not labeled) and a third opening on the tube (i.e., another opening 4c on the opposite end of the tube); and

a first hermetic door (i.e., closure plate 9), placed outside the first hermetic chamber 1/5.

Bassereau teaches that during an inserting operation (i.e., during condensation of metallic vapors generated by furnace 1), the hermetic door 9 is shifted to position 9a (i.e., to the interior

Art Unit: 1764

of fluid-tight compartment 10) such that the hermetic door 9 is substantially shielded from the hermetic chamber 1/5 when tube 4a is inserted into the first opening. At the end of a condensation operation, tube 4a is removed from the first opening and shifted to a recovery chamber (i.e., auxiliary chamber 7), and the hermetic door 9 is subsequently closed (i.e., to position 9b), thus maintaining air-tight conditions for both chambers 1/5 and 7 (see column 4, lines 18-42).

Bassereau is silent as to the first hermetic door 9 being positioned specifically between the second opening (i.e., the open left end of condenser 4a, unlabeled) and third opening 4c of the tube when the insertion of the tube 4a into the first opening 2a is completed (i.e., a completed insertion is shown in the figure). In contrast, Bassereau illustrates the hermetic door 9 being located beyond the third opening 4c of the tube 4a when the insertion of the tube into the first opening 2a is completed. Bassereau (see column 2, lines 40-43), however, teaches that,

“In all cases, the sealing means [9] is preferably placed beyond range of the vapors and is not exposed to deterioration by these vapors and metallic deposits.”

The above passage suggests that the location of the hermetic door 9 as shown in the figure is merely an example of a “preferred” embodiment, and therefore, the shown location does not teach away from a broader disclosure or other door locations.

It would have been obvious for one of ordinary skill in the art at the time the invention was made to position the first hermetic door 9 at other suitable locations beyond the range of the vapors (such as the claimed location between the second and third openings of the tube 4a when insertion is completed) in the apparatus of Bassereau, on the basis of suitability for the intended use and absent showing any unexpected results thereof, because the shifting of location of parts

Art Unit: 1764

was held to have been obvious, *In re Japikse*, 181 F.2d 1019, 1023, 86 USPQ 70, 73 (CCPA 1950), and where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art, *In re Aller*, 105 USPQ 233. One of ordinary skill in the art at the time the invention was made would have arrived at the claimed hermetic door location because one of ordinary skill in the art would have realized that such location would lie beyond the range of the vapors, for minimizing the exposure of the hermetic door to deterioration by these vapors and metallic deposits, as suggested by Bassereau above.

Regarding claim 2, Bassereau discloses an exhaust system (i.e., outlet **7a**, connected to an evacuation means, not shown) for exhausting the first hermetic chamber **1/5** via the second opening and the third opening of the tube when the tube **4a** is inserted into the first opening.

Regarding claim 3, Bassereau discloses that the first hermetic chamber **1/5** maintains a vacuum state when the first hermetic door **9** is at a closing position **9b** (see column 4, lines 19-42), while the tube **4a** is allowed to be replaced (i.e., with “another chamber provided with an empty condenser,” see column 3, lines 17-22).

Regarding claim 4, Bassereau discloses that the exhaust system (i.e., connected to the outlet **7a**) exhausts the first hermetic chamber **1/5** when the first hermetic door **9** is at an opening position **9a**, and the exhausting system is isolated from the first hermetic chamber **1/5** when the first hermetic door **9** is at a closing position **9b** (see column 4, lines 19-42), so that the tube **4a** is allowed to be replaced (i.e., with “another chamber provided with an empty condenser,” see column 3, lines 17-22).

Regarding claim 5, Bassereau discloses a means for cooling the tube **4a** (i.e., a

Art Unit: 1764

temperature regulating means 6) when the tube is inserted into the first opening.

Regarding claim 6, Bassereau discloses means for regulating a temperature of the first hermetic chamber 1/5 when the first hermetic door 9 is at an opening position 9a and a closing position 9b (i.e., the furnace 1 comprising heating means, not shown; also, the hood 5 comprises temperature regulating means 6; see column 3, lines 63-71).

Regarding claim 7, Bassereau discloses means (i.e., rollers 20 mounted on hood 4 and chamber 7), placed along the inserting direction of the tube 4a, for guiding an inserting operation of the tube (see column 4, lines 34-36).

Regarding claim 10, a second hermetic chamber (i.e., auxiliary chamber 7) adjoins the first hermetic chamber 1/5 with the first hermetic door 9 therebetween, wherein the tube 4a is inserted into the first opening at the location of connecting means 8 from the second hermetic chamber 7 (see Figure).

Regarding claim 11, an exhaust system is connected to the first hermetic chamber 1/5 via the second hermetic chamber 7 (i.e., via outlet 7a; see column 4, lines 30-42).

Regarding claim 12, the third opening 4c of the tube 4a and the exhaust system (i.e., connected to outlet 7a, not shown) are hermetically connected when the tube 4a is inserted into the first opening of the first hermetic chamber 1/5 (see Figure).

Regarding claim 19, Bassereau discloses means (i.e., cooling means 14; Figure; column 4, lines 43-45) for regulating the temperature in the second hermetic chamber 7.

4. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tejima et al. (JP 9-248549) in view of Bassereau (US 2,446,403).

[NOTE: The citations for Tejima et al. have been taken from TESHIMA et al. (US 6,332,909),

Art Unit: 1764

the English language equivalent of Tejima et al., for translation purposes only].

Regarding claims 1-4 and 8, Tejima et al. (FIGs. 6-8; see TESHIMA et al., column 53, line 45 to column 54, line 65) discloses an apparatus comprising:

a first hermetic chamber (i.e., gas tight vessel **601**; FIG. 8) having a first opening (i.e., located at the right wall of the vessel **601**), wherein the first hermetic chamber **601** may comprise a plurality of linearly arranged first openings (i.e., in communication with plural recovering chambers **605**; see FIG. 6); and

a first hermetic door provided at each of the first openings (i.e., shown as partitions **610** in FIG. 8), placed outside the first hermetic chamber **601** and capable of opening and closing the first opening.

The apparatus further comprises an exhaust system **606** for exhausting the metallic vapors through the plurality of first openings when the first hermetic doors **610** are opened, and a recovery means in the form of a chamber **611** in communication with a recovering chamber **605** for receiving and condensing the metallic vapor exhausted through each of the first openings.

Tejima is silent as to the recovery means comprising the instantly claimed structure of a tube capable of inserting into the first opening, the tube having a second opening on a side facing the first hermetic chamber **601** and a third opening on the tube, such that the exhaust system **606** exhausts the first hermetic chamber **601** via the second opening and the third opening of the tube when the tube is inserted into the first opening.

Bassereau (see Figure) teaches an apparatus comprising a recovery means having a structure of a tube (i.e., a condenser **4a** comprising a cylinder of sheet metal) capable of inserting into a first opening of a hermetic chamber (i.e., furnace **1**, in communication with hood **5**), the

Art Unit: 1764

tube having a second opening on a side facing the hermetic chamber (i.e., the left open end of the condenser tube **4a**, not labeled) and a third opening on the tube (i.e., another opening **4c** on the opposite end of the tube); such that an exhaust system (i.e., connected to outlet **7a**, not shown) exhausts the hermetic chamber **1/5** via the second opening (i.e., the open end) and the third opening **4c** of the tube **4a** when the tube is inserted into the first opening, the recovery means functioning to receive and condense the metallic vapor exhausted through the first opening of the first hermetic chamber **1/5**.

It would have been obvious for one of ordinary skill in the art at the time the invention was made to substitute the recovery means of Bassereau for the recovery means in the apparatus of Tejima et al., on the basis of suitability for the intended use thereof, because the recovery and condensation of the metallic vapour by means of the tube **4a** allows for the condensed metal to be easily transferred, within the tube, from one apparatus to the next for further treatment, as taught by Bassereau (see column 3, lines 25-44).

The collective teaching of Tejima et al. and Bassereau is silent as to the specifically claimed placement of the first hermetic door between the second opening and the third opening of the tube, such that the first hermetic door is shielded from the first hermetic chamber by the tube when insertion of the tube into the first opening is complete. In contrast, Bassereau illustrates the hermetic door **9** being located beyond the third opening **4c** of the tube **4a** when the insertion of the tube into the first opening **2a** is completed. Bassereau (see column 2, lines 40-43), however, teaches that,

“In all cases, the sealing means [9] is preferably placed beyond range of the vapors and is not exposed to deterioration by these vapors and metallic deposits.”

Art Unit: 1764

The above passage suggests that the location of the hermetic door **9** as shown in the figure is merely an example of a “preferred” embodiment, and therefore, the shown location does not teach away from a broader disclosure or other door locations.

It would have been obvious for one of ordinary skill in the art at the time the invention was made to position the first hermetic door at other suitable locations beyond the range of the vapors (such as the claimed location between the second and third openings of the tube when insertion is completed) in the modified apparatus of Tejima et al., on the basis of suitability for the intended use and absent showing any unexpected results thereof, because the shifting of location of parts was held to have been obvious, *In re Japikse*, 181 F.2d 1019, 1023, 86 USPQ 70, 73 (CCPA 1950), and where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art, *In re Aller*, 105 USPQ 233. One of ordinary skill in the art at the time the invention was made would have arrived at the claimed hermetic door location because one of ordinary skill in the art would have realized that such location would lie beyond the range of the vapors, which would thereby minimize the exposure of the hermetic door to deterioration by these vapors and metallic deposits, as suggested by Bassereau above.

Regarding claim 5, Bassereau further teaches means for cooling the tube **4a** (i.e., a temperature regulating means **6**) when the tube is inserted into the first opening.

Regarding claim 6, Tejima et al. discloses means for regulating a temperature of the first hermetic chamber **601** when the first hermetic door **610** is open or closed (i.e., the temperature adjusting means for chamber **601**; see TESHIMA et al. FIG. 7 and column 53, lines 57-62).

Regarding claim 7, Bassereau teaches means, placed along the inserting direction of tube

Art Unit: 1764

4a, for guiding a tube inserting operation (i.e., rollers **20**, flange **2a**, rod **12**; see Figure; column 4, lines 19-36).

Regarding claim 9, the same comments with respect to the combination of Tejima et al. and Bassereau, above, apply. In addition, Tejima et al. discloses that the apparatus may be configured such that a plurality of the first hermetic chambers are linearly arranged (e.g., chambers **102** and **103**), said first hermetic chambers being portioned off by openable and closeable partition **105c** (see TESHIMA et al. column.46, lines 27-46)

Regarding claim 10, Tejima et al. (FIG. 8) discloses a second hermetic chamber (i.e. chamber **611**) adjoining the first hermetic chamber **601**, with hermetic door **610** being located there between (see TESHIMA et al. column 54, lines 38-43). In the modified apparatus, the tube would inherently be inserted into the first opening of the first hermetic chamber **601** from the second hermetic chamber **611** (i.e., see Bassereau, wherein tube **4a** is inserted into the first opening via auxiliary chamber **7**, or the second hermetic chamber).

Regarding claims 11 and 12, Tejima et al. (FIG. 8) discloses an exhaust system **606** connected to the first hermetic chamber **601** via the second hermetic chamber **611** (TESHIMA et al. column 54, lines 8-13 and 44-45). As modified by Bassereau (column 4, lines 19-43), the third opening of the tube and the exhaust system **606** would inherently be hermetically connected when the tube is inserted into the first opening of the first hermetic chamber **601**.

Regarding claims 13 and 14, invoking 35 U.S.C. 112, sixth paragraph, Applicants disclose on page 27, line 23 to page 28, line 5 of the specification that the “means for performing pressure regulation” may comprise “an exhaust means, a pressurizing means, and a pressure measuring means,” wherein the exhaust means may comprise “various kind of vacuum pumps,”

Art Unit: 1764

the pressurizing means may comprise a gas introduced into the system, and the pressure measuring means may comprise “a Bourdon tube, a Pirani gauge, or the like.”

Tejima et al. discloses means (i.e., a pressure adjusting system with a pressurizing system, an exhausting system and a pressure sensor; see TESHIMA et al., FIG. 7 and column 53, lines 57-62) for performing pressure regulation for the second hermetic chamber **611** and the first hermetic chamber **601**. In the modified apparatus of Tejima et al., the provision of the tube (i.e., condenser tube **4a** of Bassereau) would inherently define “a space” between the tube and the second hermetic chamber **611**, and therefore, the means for performing pressure regulation would inherently perform pressure regulation in such space. Although the relative pressure measurements within the recited locations of the apparatus are not stated (i.e., within the space between the tube and the second hermetic chamber, or within the first hermetic chamber, or within the tube), the modified apparatus of Tejima et al. meets the claim, since the specific pressures depend on the intended use of the apparatus, and the disclosed means for performing pressure regulation is structurally capable of performing the claimed functions.

Regarding claim 15, Tejima et al. discloses the means for performing pressure regulation has a means for supplying a carrier gas to the second hermetic chamber **611** (i.e., via a carrier gas introducing system; see TESHIMA et al. column 54, lines 38-43) and thus, inherently, to a space between the tube and the second hermetic chamber.

Regarding to claims 16 and 17, Tejima et al. discloses the provision of a filter means comprising a wet filter (i.e. exhaust gas washing apparatus **2006** with alkaline-water shower, for example; TESHIMA et al. column 58, lines 37-41) in a separate embodiment of the invention. It would have been obvious for one of ordinary skill in the art at the time the invention was made

Art Unit: 1764

to provide a filter means, such that it were placed between the second hermetic chamber 611 and the exhaust system 606, in the modified apparatus of Tejima et al., since the filter means would enable the purification of exhaust gas to environmentally safe levels, as taught by Tejima et al.

Regarding claim 18, Bassereau teaches, "it is required simply to wait until the condenser of the preceding operation is sufficiently cooled to permit opening of the auxiliary chamber, to remove the full condenser and insert an empty condenser," column 3, lines 1-16). Thus, the second hermetic chamber of the modified apparatus would, inherently, comprise a second hermetic door for replacing the tube with a second tube.

Regarding claim 19, Tejima discloses means for regulating a temperature in the second hermetic chamber 611 (i.e., temperature adjusting means, not shown; TESHIMA et al. column 54, lines 38-43).

Regarding claim 20, Tejima discloses means for supplying a non-oxidizing gas to the second hermetic chamber 611 (i.e., a carrier gas introducing system; TESHIMA et al. column 54, lines 38-43, and also lines 19-27).

Response to Arguments

5. Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection, based on newly found prior art and a slight reinterpretation of the previously applied prior art references. The changes are deemed to place the application in better form for appeal.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Leung whose telephone number is (571) 272-1449.

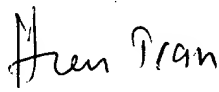
Art Unit: 1764

The examiner can normally be reached on 9:30 am - 5:30 pm Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jennifer A. Leung
March 2, 2006 


HIEN TRAN
PRIMARY EXAMINER